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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/287,579 | 04/06/1999 | LE LI | REVEO-9999 | 6469 |
| 26665 | 7590 | 04/05/2005 | EXAMINER | |
| REVEO, INC. 3 WESTCHESTER PLAZA ELMSFORD, NY 10523 | | | QI, ZHI QIANG | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2871 | |

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|----------------------------------|--|
| Office Action Summary | Application No. 09/287,579 | Applicant(s) LI ET AL. | |
| | Examiner Mike Qi | Art Unit 2871 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 62-67,88 and 89 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 62-67,88 and 89 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 62 and 88 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4,749,261 (McLaughlin et al) in view of US 6,172,720 (Khan et al); US 4,131,581 (Coker), and US 6,171,663 (Hanada et al).

Claims 62 and 88, McLaughlin discloses (col.4, lines 44-47; col.5, lines 28-47; col.8, lines 14-19; Figs. 2-3) that the liquid crystal sunroof (10) includes two transparent surfaces (22,24) and liquid crystal material (26) therebetween (col.4, lines 44-47), and the circuit (25) is connected by electrical leads (21,23) to electrodes (30,32) positioned on opposite side or surfaces of the liquid crystal material (26), and operationally, with switch (29) open or close to control the field-off state or field-on state of the light transmissive characteristics of the sunroof (10) or window (100) of the liquid crystal (26) (col.5, lines 35-47), and generally, when the liquid crystal material is in the field-on state the light should be transmission, and when the liquid crystal material is in the field-off state the light should be scattering (col.8, lines 14-18), and that the sunroof or window are glazing panel. McLaughlin indicates (col.8, line 64 - col.9, line 29) that regardless of how the liquid crystal material is made, it should provide such operative function.

McLaughlin does not explicitly disclose that the liquid crystal material comprises a PSCT mixture including a non-reactive blend of chiral liquid crystal and a monomer, and a surfactant.

However, Khan discloses (col.1, lines 23-43; col.4, lines 44-60; col.7, lines 25-43;) that in general, the liquid crystal material which comprises a chiral material would greatly reduced the viscosity, and improved properties including reduced voltages, shorter pulse times and increased contrast (col.4, lines 44-60). Khan also indicates (col.9, lines 20-54) that the polymer stabilized cholesteric texture (PSCT) displays employ substrates having surface treatment that promotes homogeneous alignment with the liquid crystal material including small amounts of monomer, and a monomer can be used as viscosity lowering additive so as to increase the response speed.

Therefore, the liquid crystal material comprising a PSCT mixture including a chiral liquid crystal and a monomer would increase the response speed as lowering the viscosity.

lacking limitation is such that the PSCT mixture including a non-reactive blend of a chiral liquid crystal and a surfactant.

However, Coker disclose (col.6, line 35 – col.7, line 13) that for the purpose of viscosity reducing diluent, a primary requirement is that such diluents be relatively non-reactive in the blends.

Therefore, using non-reactive blend of chiral liquid crystal is a primary requirement to reduce the viscosity so as to improve the response time shorter and fast.

Still lacking limitation is such that the PSCT mixture including a surfactant.

However, Hanada discloses (col.17, lines 34-44) that in order to improve the surface smoothness of a layer, various additives such as organic surfactant is used.

Therefore, the PSCT mixture having a surfactant would improve the surface smoothness of the layer.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to use the liquid crystal material having PSCT mixture including a non-reactive blend of a chiral liquid crystal and a monomer and a surfactant as claimed in claims 62 and 88 for achieving a good planar of the material, enhancing the surface treatment and improving the smoothness of the layer.

3. Claims 63-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over McLaughlin, Khan, Coker and Hanada as applied to claims 62 and 88 above, and further in view of US 5,691,795 (Doane et al).

Claims 63-64, lacking limitation is such that the operation mode of total-scattering and total-transmission, and avoiding the use of energy absorbing mechanism.

However, Doane discloses (col.6, line 64 – col.10, line 60; Figs. 1-3) that the polymer-liquid crystal material (electro-optical glazing structure) is strongly light scattering (total-scattering mode) in a field-Off condition and optical clear (total-transmission mode) in a field-On condition (col.8, lines 26-32), and an AC voltage source (17) controls the polymer domains in order to switch the cell between different optical states (col.7, lines 10-12), and it does not need to use any energy absorbing mechanisms (do not require polarizers which limit the brightness and without the need of color filters which also reduce brightness) (col.3, lines 9-15), such that the operation

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mode can be electrically-activated or switched, i.e., in the field-Off condition the material is strongly light scattering (total-scattering), and when the field turned on the material is optically clear (total-transmission) (col.8, lines 26-32), and the wavelengths are in the ultra violet (solar region of the electromagnetic spectrum) (col.4, lines 1-8), and the cell is haze free at all viewing angle (col.4, lines 43-51).

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to operate in the scattering mode and transmission mode and avoiding the use of energy absorbing mechanism as claimed in claims 63-64 for achieving haze free at all viewing angle used as an optical glazing panel.

Claim 65, lacking limitation is such that the broad operation wavelength band.

However, Doane discloses (col.3, line 66 – col.4, line 18) that the wavelength of the light reflected by the material is given by the relation $\lambda=np$ (n is the average refractive index, p is the pitch length), and the wavelength is above infra-red and below ultra-violet, i.e., a broad band electromagnetic spectrum of operation including the UV light, infra-red or visible light, and that was common and known in the art to tailor the band to the required application.

Therefore, it would have been obvious in the device of Doane to employ a broad band including near-IR, visible and near-UV in order to tailor the operation to the band required for any given application.

4. Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over McLaughlin, Khan, Coker and Hanada as applied to claims 62 and 88 above, and further in view of US 5,667,897 (Hashemi et al).

Claim 66, lacking the limitation is such that using float-glass as the transparent substrates.

However, Hashemi discloses (col.1, lines 49 - 51) that float-glass processing is the conventional way of producing sheet glass, and used for automotive and architectural uses throughout the world.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to use float-glass substrates as claimed in claims 66 for producing sheet glass as that is the conventional way used throughout the world.

5. Claims 67 and 89 are rejected under 35 U.S.C. 103(a) as being unpatentable over McLaughlin, Khan, Coker and Hanada as applied to claims 62 and 88 above, and further in view of US 6,022,547 (Herb et al).

Claims 67 and 89, lacking the limitation is such that using the material of dimethylsiloxane polymer as the surfactant.

However, Herb discloses (col.20, lines 29-41) that the material of dimethylsiloxane polymer is used as a surfactant. Even though Herb discloses water-in-oil-in-water emulsion, but Herb indicates that the material of the material of dimethylsiloxane polymer is used as a surfactant. The reference Herb is an evidence to show that using Poly (dimethylsiloxane) as a surfactant.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to use dimethylsiloxane polymer as the surfactant as claimed in claims 67 and 89 for improving the surface smoothness of a layer.

Response to Arguments

6. Applicant's arguments filed on Sep.9, 2004 have been fully considered but they are not persuasive.

Applicant's arguments are as follows:

1) The combination of references is not proper.

Examiner's responses to Applicant's responses are as follows:

1) The reference McLaughlin relies on the switching control of the panel operation mode into light transmission mode or light scattering mode. The reference McLaughlin does not specific describe that the switching control is base on polymer dispersed liquid crystal system (PDLC), and the operative function should provide regardless of how the liquid crystal material is made.

The reference Khan relies on the liquid crystal material comprising a PSCT mixture including a chiral liquid crystal and a monomer that would increase the response speed as lowering the viscosity.

The reference Coker relies on using non-reactive blend of chiral liquid crystal that is a primary requirement to reduce the viscosity so as to improve the response time shorter and fast.

The reference Hanada relies on the PSCT mixture having a surfactant that would improver the surface smoothness of the layer.

The reference Herb relies on an evidence of using dimethylsiloxane polymer as a surfactant.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (571) 272-2299.

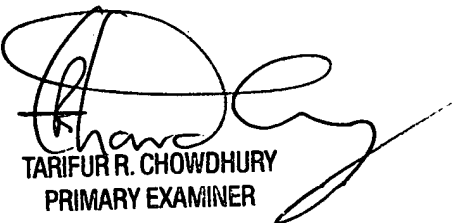
The examiner can normally be reached on M-T 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Qi
March 22, 2005



TARIFUR R. CHOWDHURY
PRIMARY EXAMINER